

### **WHAT IS CLAIMED IS:**

1. An energy transform device for linear motion, comprising:

plural magnetic units at least having a pair of N-S poles, a N pole and a S pole of each pair of N-S poles being separated and parallel  
5 to each other, the each pair of N-S poles arranged alternatively;

a coil mechanism disposed between the S pole and the N pole of plural magnetic units, the coil mechanism provided with plural coils for cooperating with the plural magnetic units, wherein the coils on the coil mechanism are able to linearly move relative to the plural magnetic units,  
10 so as to enable the coils to generate electromotive force when coils moving in magnetic field of the plural magnetic units.

2. The energy transform device for linear motion as claimed in claim 1, wherein a coil on the coil mechanism can be inputted with electricity for driving the coil mechanism to linearly move, so as to  
15 enable other coils on the coil mechanism to output electricity.

3. The energy transform device for linear motion as claimed in claim 1, wherein a coil on the coil mechanism can be inputted with electricity for driving the magnetic units to linearly move, so as to enable other coils on the coil mechanism to output electricity.

20 4. The energy transform device for linear motion as claimed in claim 1, 2 or 3, wherein a desired output voltage can be obtained by properly changing magnetic field density of the magnetic units.

5. The energy transform device for linear motion as claimed in

claim 1, 2 or 3, wherein a desired output voltage can be obtained by properly changing number of turns of the respective coils on the coil mechanism.

6. The energy transform device for linear motion as claimed in  
5 claim 1, 2 or 3, wherein a desired output voltage can be obtained by properly changing velocity of the respective coils' motion on the coil mechanism relative to the magnetic units.